

REMARKS

Claims 1-26 are pending in the present patent application. Claims 1-26 stand rejected. By this amendment, claims 1 and 20 have been amended. This application continues to include claims 1-26.

Claims 1-26 were rejected under 35 U.S.C. §103(a) as being unpatentable over Onishi, et al., U.S. Patent No. 6,698,875 B2 (hereinafter, Onishi) in view of Gompertz, et al., U.S. Patent No. 5,742,306 (hereinafter, Gompertz). Applicants respectfully request reconsideration of the rejection of claims 1-26 in view of the following.

With respect to claims 1, 20 and 26, the Examiner contends that the separate printhead used for different type of ink is made obvious by the unitary structure printhead Gompertz, and that the reason to modify Onishi with Gompertz is to provide convenience and cost effectiveness as when one of the cartridges needs to be replaced. Applicants respectfully disagree.

The reasons of convenience and cost effectiveness for modifying Onishi with Gompertz have nothing to do with the problem being solved by the present invention, and in fact an opposite argument can be made that such a modification does not provide convenience and does not provide cost effectiveness. For example, it is no more convenient for a user to replace a single cartridge having multiple nozzle arrays for jetting multiple inks than it is to replace a single cartridge having a single nozzle array for jetting a single ink. Further, it is likely that using individual cartridges as in Gompertz for jetting, for example, five colors of ink actually costs more than having a single printhead cartridge, as in Onishi, for jetting five colors of ink. Accordingly, the asserted reasons for such a modification of Onishi with

Gompertz do not hold. Thus, one skilled in the art would not be motivated to modify Onishi with Gompertz in attempting to achieve the claimed invention.

Further, Applicants' claimed invention provides advantages that are not addressed by Onishi and/or Gompertz.

Each of independent claims 1 and 20 have been amended to recite, in part, "wherein a physical separation between said first printhead and said second printhead builds in a drying time between a time that a chromatic dye-based ink drop expelled by said first printhead contacts a chromatic pigment-based ink drop expelled from said second printhead at a particular pixel location on a print media sheet or at an adjacent location on said print media sheet where said chromatic dye-based ink drop and said chromatic pigment-based ink drop may overlap." Support for this amendment of claims 1 and 20 can be found in Applicants' specification at page 7, lines 15-25.

Onishi discloses a single printing head 28 with nozzle arrays 61-66 for black and color inks (col. 18, lines 29-32, Fig. 5), wherein the dark cyan and magenta inks, and the black and yellow inks are dye-based, whereas the light cyan and magenta inks are pigment-based (col. 19, lines 12-18). Although, Onishi discloses both dye-based and pigment-based inks, the Onishi dye-based and pigment-based inks are introduced into nozzle arrays 61-66 of the singular printing head 28.

In contrast to Onishi, Gompertz discloses that a color pen 62 may contain a pigment based ink, but that pen 62 is described as containing three dye based ink colors, such as cyan, yellow and magenta (col. 5, lines 7-10). A black pen 60 contains a pigment-based ink (col. 5, lines 10-11). A full color pen may be used in conjunction with imaging pens having 10% and 40% colorant concentrations, respectively (col. 8, lines 7-25). However, Gompertz does not

address printing on a sheet of media with both chromatic pigment-based inks and chromatic dye-based inks.

With respect to the present invention, by having the first printhead in fluid communication with a first ink reservoir containing a chromatic dye-based ink, and the second printhead in fluid communication with a second ink reservoir containing a chromatic pigment-based ink, as recited for example in claims 1 and 20, advantages over the prior art are made possible that would not be otherwise achieved.

For example, the chromatic dye-based inks and the chromatic pigment based inks, which may be generally considered to be incompatible, are physically separated into two totally separate ink reservoirs and expelled by two totally separate printheads. This physical separation translates, for example, into a physical separation of a corresponding standard color printhead printing with chromatic dye-based inks and a photo printhead printing with chromatic pigment-based inks along the bi-directional scanning path of the printhead carrier. This separation, in turn, builds in a drying time between the time that an ink droplet expelled by one of the standard color printhead and the photo printhead at a particular pixel location on the print media sheet can be contacted by another ink drop expelled from the other of the standard color printhead and photo printhead at the same pixel location, or at an adjacent location where the ink droplets may overlap. (See Applicants' specification at page 7, lines 15-25).

The advantage of a built-in drying time resulting from separation of the printheads with respect to chromatic dye-based and chromatic pigment-based inks is not realized by the Onishi printing head 28 or Gompertz pens 62. For example, it is seen in Onishi Fig. 5 that the nozzle array 63 for the light cyan (LC) ink, which is pigment-based, is immediately adjacent

the nozzle array 64 for the dark magenta (M) ink, which is dye-based. Further, Gompertz discloses pens 62 using either chromatic pigment-based inks or chromatic dye-based inks, but does not address printing on a sheet of media with both chromatic pigment-based inks and chromatic dye-based inks. Thus, unlike Applicants' claimed invention, the Onishi and Gompertz configurations do not disclose, teach, or suggest a separation as between the printhead for chromatic dye-based ink and the printhead for chromatic pigment-based inks, wherein a physical separation between said first printhead and said second printhead builds in a drying time between a time that a chromatic dye-based ink drop expelled by said first printhead contacts a chromatic pigment-based ink drop expelled from said second printhead at a particular pixel location on a print media sheet or at an adjacent location on said print media sheet where said chromatic dye-based ink drop and said chromatic pigment-based ink drop may overlap.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit independent claims 1 and 20 are allowable in their present form.

Claims 2-19 depend, directly or indirectly, from claim 1, and are believed allowable in view of their respective dependence from claim 1.

Claims 21-26 depend, directly or indirectly, from claim 20, and are believed allowable in view of their respective dependence from claim 20.

In addition, with respect to claim 26, claim 26 is directed to the method of claim 20, wherein chromatic dye-based ink drops and chromatic pigment-based ink drops may be layered, or be overlapping, in forming said color image. Neither Onishi nor Gompertz, taken alone or in combination, disclose, teach, or suggest wherein chromatic dye-based ink drops

and chromatic pigment-based ink drops may be layered, or be overlapping, in forming the color image, as recited in claim 26.

In rejecting claim 26, the Examiner makes a general statement that any currently available printer can be used to function in this manner so that variety of secondary color or tone can be achieved. This ignores, however, that such printers did not address the incompatibility problems associated with printing the chromatic dye-based and chromatic pigment-based inks in the manner the present invention provides a solution, and which is not disclosed, taught or suggested by the cited references. Accordingly, claim 26 is believed patentable in its own right.

Accordingly, Applicants believe that claims 1-26 are in condition for allowance in their present respective forms, and thus respectfully request that the rejection of claims 1-26 under 35 U.S.C. 103(a) be withdrawn.

In view of the above, Applicants believe the present application is in condition for allowance in its present form, and it is respectfully requested that the Examiner so find and issue a Notice of Allowance in due course.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor and authorize that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.

Should any question concerning any of the foregoing arise, the Examiner is invited to telephone the undersigned at (317) 894-0801.

Respectfully submitted,



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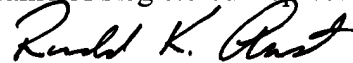
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